

## DIVISION 2 - SITEWORK

### SECTION 02100

#### TOPSOILING AND SEEDING

##### PART 1 - GENERAL

###### 1.1 SCOPE

###### A. Description of Work

1. The work covered by this section consists of furnishing all labor, material, and equipment and the performing of all operations necessary or required to place topsoil, fine grade, fertilize, lime, seed and mulch all graded and cleared areas, including those areas disturbed in the course of construction, in accordance with the specifications and applicable drawings.

###### B. Quality Assurance

1. Seed shall conform to the formula contained herein and be certified. The supplier shall furnish an affidavit stating that materials used conform to the specification requirements and submit state certification labels to the Engineer.
2. The Engineer shall be furnished with copies of the delivery tickets for all materials (lime, fertilizer, seed, mulch) used for the seeding under this contract.

##### PART 2 - PRODUCTS

###### 2.1 MATERIALS

###### A. Topsoil

1. The top 3 inches of backfilled trench shall be comprised of topsoil.
2. Topsoil shall be furnished from an approved source. Preliminary grading by others will remove topsoil from the pump station sites. The Contractor shall provide all topsoil from off-site sources.
3. It shall be natural, friable, agricultural soil, possessing characteristics representative of soils in the vicinity that will sustain vigorous plant growth, free from stones larger than one-half (1/2) inches in diameter, roots, toxic substances and other foreign matter which might be detrimental to plant growth. Topsoil shall meet the requirements of the Virginia Sediment & Erosion Control Handbook specifications and latest addenda.

###### B. Lime

1. Shall conform to the standards of the Association of Official Agricultural Chemists.

2. Ground agricultural limestone shall contain not less than 55% of total carbonates and shall be ground to such a fineness that at least 90 percent will pass a No. 10 mesh screen and at least 50% will pass a No. 100 mesh screen. Coarser material will be accepted provided that the specified rates of application are increased proportionately on the basis of quantities passing the 100 mesh screen. No additional payment will be made for the increased quantity.

C. Fertilizer

1. Shall be a commercial type 10-20-10 (nitrogen, phosphoric acid, and potash, respectively), and shall be uniform in composition, free flowing and suitable for application with approved standard equipment.
2. The fertilizer shall conform to applicable State fertilizer laws and shall be delivered to the site in bags or other containers each fully labeled and bearing the name, trademark, and warranty of the producer.

D. Seed

1. Shall be labeled, tagged, or marked per accepted horticulture practice and shall comply with all current State and Federal regulations, and shall be furnished in sealed standard containers. Seed which has become wet, moldy or otherwise damaged in transit or storage will not be acceptable.
2. Seed and mixes shall be furnished with a certification from the seed company stating type of seed; percentages of mixture purity, germination, and weed seed.
3. The seed mix to be applied shall have the following minimum requirements:

	<u>Purity</u>	<u>Germinator</u>	<u>Weed Seed</u>	<u>Lbs. per 1,000 sq. ft.</u>
Kentucky-31	90%	80%	0.75%	3.0
Merion or Common Kentucky Bluegrass	95%	85%	0.75%	1.0

E. Mulch - Straw, Hay or Wood Cellulose

1. Straw and hay shall be free from noxious weeds, grain seeds, mold or other objectionable material and shall be in an air-dry condition and suitable for placing with mulch blower equipment. Asphalt binder shall be per AASHTO M-140, Grade SS-1.
2. Wood cellulose shall be natural wood mulch, without toxic substances and foreign matter, packaged in air-dry containers capable of application with power spray equipment, and shall be a maximum pH of 9.0 in distilled water.

## PART 3 - EXECUTION

### 3.1 GENERAL

#### A. Preparation

1. The ground surface shall be cleared of stones, roots, cable, wire, grade stakes and any other material that might hinder proper grading and tillage, be harmful to plant growth, or hinder subsequent mowing and other maintenance operations. Subgrades shall be loosened by discing to all depth of not less than three (3) inches so that the loosened surfaces will readily bond with the topsoil.
2. Areas to be planted shall be grades as shown on the drawings and all surfaces shall be left in an even and properly compacted condition to prevent the formation of depressions where water will stand.

### 3.2 APPLICATION

#### A. Topsoil, Lime, and Fertilizer

1. Topsoil shall be as specified, spread to a compacted depth of two (2) inches for areas to be sodded, or four (4) inches for areas to be seeded, shall be raked to a smooth uniform surface and compacted with a lawn roller weighing not less than 90 pounds per foot of roller width. Any bumps or depressions which develop shall be leveled or filled, as required, and rolled until a satisfactory grade is obtained. Do not spread topsoil when frozen or excessively wet or dry. Protect finished topsoil areas from damage by vehicular or pedestrian traffic.
2. Lime and fertilizer shall be as specified, applied at the rate of 90 pounds per 1,000 square feet for lime, and 25 pounds per 1,000 square feet for fertilizer. Not more than two (2) days afterward, the area shall be raked or harrowed in such a manner as to well work the lime and fertilizer into the top two (2) inches of soil, which should then be thoroughly wetted.

#### B. Seeding and Mulching

1. All seeding shall be accomplished by Hydroseeding methods. Hydroseeding shall be done by a three-step method using the application rates previously specified. The three steps shall be as follows:
  - a. Step 1 - Apply lime and fertilizers.
  - b. Step 2 - Apply seed mixture.
  - c. Step 3 - Apply hydro mulch.

Note: All mulching shall be accomplished by means of hydro-mulching except where slopes are steep and required tied down mulch, a straw or hay mulch as specified herein shall be used. However, under no circumstances shall straw or hay mulch be applied to the berms forming the detention ponds or the aeration lagoons. After slopes have stabilized, the Contractor shall gather and remove from the site all straw and/or hay mulch.

2. Straw or hay mulching shall be spread uniformly over seeded areas at the rate of 115 pounds per 1,000 square feet. It shall be anchored by the specified asphalt binder as follows:
  - a. Binder applied as separate operation at 8 gallons per 1,000 square feet on slopes flatter than 3 to 1; 16 gallons per 1,000 square feet on slopes 3 to 1 and steeper.
  - b. Binder applied simultaneously with straw or hay at 1.5 gallons per square yard as directed.
3. The Contractor shall take all necessary precautions to prevent asphalt binder from marking or defacing structures, pavements, utilities, or plant growth. Any disfigurement shall be repaired at the Contractor's expense.
4. Wood cellulose mulch, as specified, shall be applied evenly at the rate of 50 pounds per 1,000 square feet.

### 3.3 SEEDING SEASONS

- A. The normal seasonal dates for seeding and sodding shall be:
  - a. Spring season - March 15 to May 1
  - b. Fall season - August 15 to October 1
- B. Seeding at other times than specified will be allowed only upon written approval. Seeding shall not be done during windy weather, when the ground is excessively wet, frozen, or otherwise untillable.
- C. Temporary seeding, as required for erosion control, is to be applied according to the specifications of the local Soil Conservation District.

### 3.4 SEED ESTABLISHMENT PERIOD

- A. The Contractor shall protect, provide proper care and maintain the seeded areas for at least 90 days after seeding is complete or until the end of the Contract, whichever is the longest period.
- B. The Contractor shall repair any damage to seeded areas without additional compensation and shall provide a uniform acceptable stand of grass.
- C. The Contractor shall seed as soon as a unit or portion of the project is satisfactorily completed.
- D. Maintenance shall consist of repair and replacement of eroded areas, watering, refertilizing, reliming, reseeding, and remulching as necessary to provide an even, fixed growth of grass.
- E. The Contractor shall provide protection against traffic and shall erect the necessary barricades and warning signs immediately after planting is completed.

END OF SECTION